EAST MARICOPA FLOODWAY AT QUEEN CREEK ROAD
FCD GAGE ID# 6583

STATION DESCRIPTION

LOCATION – The gage is located approximately 1/4 mile west of Higley Road at the Queen Creek Road crossing of the EMF. The instrumentation is located on the downstream side of the bridge near the center of the channel. Latitude N 33° 15' 47.3", Longitude W 111° 43' 32.8". Located in the NW1/4 NE1/4 S15 T2S R6E, in the Higley 7.5-minute quadrangle.

ESTABLISHMENT – The gage was installed January 18, 1989.

DRAINAGE AREA – 104.6 mi^2

GAGE – The gage is a pressure transducer type instrument. It is located at the low flow channel. Gage elevation is -0.64 feet gage height, levels of March 8, 2012.

There are two staff gages at this location. The first is the older painted staff gage on the existing pier of Queen Creek Road. It has faded, and is not expected to be maintained. It is the gage height reference for this station. The second staff is newly painted and is located on a new pier about 10 feet south of the previously existing pier. It too reads in gage height and will be the new gage height reference.

There are currently no crest-stage gages at this site.

ZERO GAGE HEIGHT - Zero is defined as the datum of the staff gage near the gaging equipment. Elevation 1,303.51 feet M.S.L.

HISTORY – A float gage was established on January 18, 1989. The float gage was replaced with a pressure transducer on July 24, 1992. The crest gages were installed at an unknown date. The transducer was moved to the low flow channel in the spring of 2008. The station was removed for construction on October 21, 2010, and was re-installed following the construction on January 18, 2012.

REFERENCE MARKS –

RP-A is a spot on the north wingwall of the city of Mesa project in the Floodway, southeast of the gage station. It was painted red. Elevation 2.894 feet gage height, levels of March 8, 2012.

RP-B is a spot, painted red, on the southwest corner of the bridge. Elevation is 15.077 feet gage height, levels of March 8, 2012.

CHANNEL AND CONTROL – The channel is a trapezoidal shape with grass lining. The channel passes under the Queen Creek Road bridge at this location. Upstream of the gaging location, the channel bends to the northeast. The channel is relatively straight downstream of the gage with a slight tending to the southwest.

The channel is the control for all but very shallow depths.

RATING – The current rating is Rating #5 which is a reapplication of Rating #2, applied as of March 1, 2000. It was applied following the event of March 6, 2000. The rating was applied because it used smaller N values, which better represent the current channel conditions. Previously, Rating #4 was used beginning October 1, 1997. This rating was developed by T. W. Lehman and R. W. Cruff modifying Rating #3 with direct measurements. This rating was developed using an HEC-2 model and varying the N values based on the water surface elevation. Higher N values were used at lower elevations, with the N value decreasing as the water surface elevation rose. Significant grass in the channel had justified using varying N values. The rating and N values were confirmed by direct measurements. Rating #3 was by T. W. Lehman developed from an HEC-RAS model of surveyed cross sections. Rating #2 was developed by R. W. Cruff using an HEC-2 model of surveyed cross sections and Manning's equation for flows less than 300 cfs. Rating #1 was developed by S. D. Waters using an HEC-2 model step backwater.

Ratings should be evaluated following each event to determine the nature of the channel conditions.

DISCHARGE MEASUREMENTS – Discharge measurements can be made by wading the channel at low flows. Higher flows require direct measurement possibly from the Queen Creek Road bridge, or via indirect methods.

POINT OF ZERO FLOW – The PZF is approximately -1.6 feet gage height. The low flow is in the newly created low flow channel.

FLOODS – A flood of approximately 1,500 cfs recorded by the gage on September 2, 1996, and confirmed by slope area. The peak flow occurred on October 28, 2000, at 3.80 feet gage height and 2,459 cfs.

REGULATION – Several man-made lakes in the Superstition Springs golf course and Leisure World golf course upstream may serve to retain water at low flows. Higher flows are likely unaffected.

DIVERSIONS – Several man-made lakes in the Superstition Springs golf course and Leisure World golf course upstream may serve to retain water at low flows. Higher flows are likely unaffected.

ACCURACY – Fair to good

JUSTIFICATION – Monitor flows in the East Maricopa Floodway

UPDATE – March 13, 2012
DE Gardner